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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/538,741

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Luca Balconi

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EXAMINER

LEONG, NATHAN T

ART UNIT

PAPER NUMBER

1792

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/538,741	<b>Applicant(s)</b> BALCONI ET AL.	
	<b>Examiner</b> NATHAN T. LEONG	<b>Art Unit</b> 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Application Status***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/20/2009 has been entered.

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 14-19 and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belli et al WO 99/33070 in view of Harlin et al WO 01/38060 A1.

Per claim 14, Belli teaches the method of producing an electrical cable comprising a conductor (transmissive element, see pg. 5, lines 10-11), comprising an expanded semiconductive layer (the coating layer, pg. 5, lines 13-15) in a radially outer position with respect to the cable, that may be made of cross-linkable material and cross-linked (pg. 13, lines 8-15) and an expanding agent (pg. 12, lines 21-25). The cable composition is made by an extrusion process (pg. 11, lines 22-30), inherently in an extruder, where an expansion step is also carried out (pg. 12, lines 6-20).

Belli is silent as to operating the expansion and cross-linking steps at atmospheric pressure by heating with a heating fluid after the extrusion process, as disclosed in claim 14. Harlin teaches the method of cross-linking a layer by curing/heating after extrusion under normal atmospheric pressure (pg. 2, lines 13-16) in the presence of a heating fluid (pg. 3, line 10). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the cable forming method taught by Belli with the method taught by Harlin. One would have had motivation to make such a combination because operation at a relatively lower pressure will allow expensive pressure vessels, difficulties associated with starting and stopping overpressure processes, and additional safety concerns to be avoided (pg. 2, lines 7-20). Since Belli discloses the same expanding agent as claimed (see below, claim 23), expanding would inherently occur as the claim limitations are met. Also, it is noted that Belli discusses that the coating should further be expanded after removal from the extruder (pg. 12, lines 32-35).

Per claims 15 and 16, Belli teaches the heating fluid within the extruder to circulate at about 72 m/s, and during the subsequent heating step, it would have been obvious to one of ordinary skill in the art to also circulate the heating fluid around the coating layer to perform a more uniform heating process. Since Belli teaches optimizing the speed at which a heating fluid circulates, one of ordinary skill in the art would also be able to optimize the speed at which a heating fluid circulates around the coating layer to yield the best results via routine experimentation (see MPEP 2144.05). Per claim 17, Belli teaches using an extrusion temperature that is greater than 140°C, for example, in the range of 160-200°C (pg. 13, lines 3-8, and Example 3). Per claim 18, Harlin teaches using an inert gas in the heating process (pg. 1, line 24). Harlin also teaches the advantages of using an inert gas, in that it does not cause undesired reactions with the coating layer (pg. 3, lines 27-35). Per claim 19, teaches a coating layer (the expanded semiconductive layer) containing an expanding agent (pg. 12, lines 21-25) and a cross-linking agent (pg. 13, lines 8-26). Per claims 21 and 22, Belli teaches using dicumyl peroxide as an organic peroxide as the cross-linking agent for the coating composition (pg. 13, lines 8-26). Per claim 23, Belli teaches using mixtures of organic acids, for example citric acid, with carbonates and/or bicarbonates as the expanding agent (pg. 12, lines 21-25).

The wording of claim 24 is not necessarily drawn to using the coating layer as a cooling method for the cable, because it states "cooling said cable provided with said expanded and cross-linked coating layer". Thus, for the purposes of examination, it can be and is interpreted as the method comprising cooling both the cable and coating layer

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together. Therefore, per claim 24, Belli teaches cooling both the cable along with the expanded coating layer in air (see Example 3). Per claims 25 and 26, Belli teaches having a metal shield around the coating layer (pg. 13, lines 27-35), and further coated with a protective outer sheath (pg. 14, lines 5-9).

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Belli et al WO 99/33070 in view of Harlin et al WO 01/38060 A1, as applied to the claims above, further in view of Chaudhary et al US 2001/0002075 A1.

Claim 20 is drawn to the method described above in claim 19, further comprising that the decomposition temperatures of the cross-linking agent and the expanding agent differ by at most 50°C. Belli in view of Harlin teaches all the limitations of claim 19, as discussed above, in addition, teaching a step of maintaining a temperature below the decomposition temperature of the expanding agent, where the agent would expand above said decomposition temperature (see Examples 1-2). Belli in view of Harlin fails to explicitly teach having a maximum decomposition difference of 50°C between the cross-linking agent and expanding agent. Chaudhary teaches the importance of the decomposition temperature in the cross-linking process by also maintaining operating temperature based on the decomposition temperature of the cross-linking agent [0011]. Since Belli teaches a coating layer using both an expanding agent and a cross-linking agent together, it would be obvious to one of ordinary skill in the art at the time of the invention to know and utilize the decomposition temperature of the expanding agent taught by Belli and the decomposition temperature of the cross-linking agent taught by

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Chaudhary so that the cross-linking step and the expansion step could be done together because this would present a more efficient scenario where only one heating step, instead of two, are needed. One of ordinary skill in the art at the time of the invention would realize that in order to have both the cross-linking step and the expansion step occur together, the difference between the decomposition temperatures of the two respective agents would have to be relatively close together. One of ordinary skill in the art at the time of the invention would have the knowledge and desire to optimize the process to yield the best results. Thus, claim 19 comprising the limitation of a 50°C difference between the cross-linking agent and the expanding agent is not patentably distinct over the prior art.

### ***Response to Arguments***

Applicant's arguments with respect to claims 14-26 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments on pages 5-9, drawn to the newly added limitation of cross-linking and expanding after the extrusion step, are moot in view of the new rejection. Examiner acknowledges that Belli is silent as to expanding and cross-linking the layer after the extrusion step via a heating fluid at atmospheric pressure (although Belli does teach expanding and cross-linking at various other points in the process). However, Harlin teaches expanding and cross-linking a similar coating layer via a heating fluid at atmospheric pressure after the extrusion process, and the two prior art references are therefore combined in this manner to form a new grounds of rejection.

Applicant's arguments on page 9-13 concerning the extrusion process and the heating fluid are now moot in view of the new grounds of rejection, as Harlin is referenced to teach cross-linking and expanding after the extrusion step, not during the extrusion step. Applicant's arguments on page 14-15 concerning the newly added limitations are also moot in view of the new grounds of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN T. LEONG whose telephone number is (571)270-5352. The examiner can normally be reached on Monday to Friday, 7:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571)272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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Examiner, Art Unit 1792

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